Before the
Federal Communications Commission
Washington, D.C. 20554

In the Matter of	)	
	)	
Improving Public Safety Communications in the 800 MHz Band	)	WT Docket 02-55
	)	
Consolidating the 800 and 900 MHz Industrial/Land Transportation and Business Pool Channels	)	ET Docket No. 00-258
Amendment of Part 2 of the Commission's Rules to Allocate Spectrum Below 3 GHz for Mobile and Fixed Services to Support the Introduction of New Advanced Wireless Services, including Third Generation Wireless Systems	)	RM-9498
	)	RM-10024
Petition for Rule Making of the Wireless Information Networks Forum Concerning the Unlicensed Personal Communications Service	)	ET Docket No. 95-18
Petition for Rule Making of UT Starcom, Inc., Concerning the Unlicensed Personal Communications Service	)	
Amendment of Section 2.106 of the Commission's Rules to Allocate Spectrum at 2 GHz for use by the Mobile Satellite Service	)	

To: The Commission

Petition for Reconsideration

The Association of American Railroads ("AAR"), by its undersigned counsel, pursuant to Section 1.429 of the Commission's rules, hereby requests the Commission to reconsider one aspect of the decision adopted in the *Report and Order* ("*R&O*") in the

above-captioned proceeding, FCC 04-168, released August 6, 2004,[1] notice of which was published in the Federal Register on November 22, 2004.[2] Specifically, AAR is requesting the Commission to adopt interference abatement procedures for incumbents in the 900 MHz band that are equivalent to those adopted in the *R&O* for the 800 MHz band. In support of this petition, the following is shown:

I. Statement of Interest

1. AAR is a voluntary non-profit organization composed of railroad companies operating in the U.S, Canada and Mexico. One of AAR's roles is to represent its members in connection with federal regulatory matters of concern to the railroad industry, including matters relating to communications and access to radio frequency spectrum. Also, AAR has been certified by the Commission as the designated frequency advisory committee that coordinates licensing in the Private Land Mobile Radio (PLMR) bands for railroad use.[3] In this capacity, AAR serves as the frequency coordinator not only for its own members, but also for other entities that meet the definition of a "railroad licensee" in Section 90.7 of the Commission's rules (such as metropolitan transit authorities and regional and short-line railroads).

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[1] *Report and Order, Fifth Report and Order, Fourth Memorandum Opinion and Order*, WT Docket No. 02-55 *et al*., FCC 04-168, released August 6, 2004.

[2] 69 Fed. Reg. 67823, November 22, 2004.

[3] *See* Frequency Coordination in the Private Land Mobile Radio Services, *Report & Order*, 103 FCC 2d 1093, ¶ 94 (1986); Replacement of Part 90 by Part 88 to Revise the Private Land Mobile Services and Modify the Policies Governing Them and Examination of Exclusivity and Frequency Assignment Policies of the Private Land Mobile Services, *Second Report and Order*, 12 FCC Rcd 14307, 14324, 14330 (1997) ("*Second Report & Order*"), and *Second Memorandum Opinion and Order*, 14 FCC Rcd 8642, 8650-52 (1999).

2. Radio communications systems are a vital component of the railroad industry's operations, and AAR's members have a very strong interest in this proceeding. Although the railroad industry does not use frequencies in the 800 MHz band and therefore is unaffected directly by most of the policies and procedures adopted by the Commission in the *R&O*, the railroads make extensive use of frequencies in the 900 MHz band, as described in greater detail below. In this regard, AAR filed Comments in this proceeding urging the Commission not to allow the history of interference in the 800 MHz band to be repeated in the 900 MHz band.[4] In particular, AAR encouraged the Commission to consider favorably Nextel's proposal to vacate the "interleaved" spectrum it currently holds at 896/901 MHz and 934/940 MHz so that the Commission could then re-designate those channels for traditional "high-site" use by Business, Industrial and Land Transportation licensees.[5] AAR stated in its Comments that, by accepting Nextel's proposal, the Commission could avoid a repetition at 900 MHz of the interference problems that have occurred at 800 MHz as a result of allowing different system architectures to co-exist on interleaved channels.[6]

3. Unfortunately, instead of accepting Nextel's proposal to relinquish its rights to 900 MHz spectrum, the Commission surmised that Nextel may have a need for spectrum capacity in that band to accommodate subscriber demand during the 800 MHz reconfiguration (and possibly thereafter) and rejected Nextel's proposal to vacate the 900

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[4] AAR Comments in WT Docket No. 02-55, filed May 6, 2002 ("AAR Comments").

[5] Nextel "White Paper" filed November 21, 2001, at 4.

[6] AAR Comments at 3-4.

MHz band.[7] As a result of that decision (and unless protective measures are adopted as urged by AAR in this Petition for Reconsideration), the Commission will have created an environment in the 900 MHz band that will virtually ensure a repetition of the same kinds of interference problems that have plagued the 800 MHz band and which gave rise to this proceeding in the first place.

II. The Commission Should Protect 900 MHz Incumbents from Interference.

4. The railroad industry makes extensive use of six frequency pairs in the 900 MHz band[8] that were set aside by the Commission in 1988 for development of a nationwide "Advanced Train Control System" ("ATCS").[9] These six channel pairs constitute an extremely important component of the U.S. railroad industry's communications infrastructure.[10] Because these channel pairs are interleaved with

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[7] *R&O* at ¶ 207. Nextel's proposal to vacate the 900 MHz band was an integral part of this proceeding from the outset, having been included in Nextel's original November 2001 "White Paper" (see n. 5, *supra*). AAR submits that, in the context of this proceeding, the Commission's rejection of Nextel's proposal to vacate the 900 MHz band is a "changed circumstance" within the meaning of Section 1.429(b) of the Commission's rules governing petitions for reconsideration.

[8] The six frequency pairs are 896.8875/935.8875 MHz, 896.9375/935.9375 MHz, 896.9875/935.9875 MHz, 897.8875/936.8875 MHz, 897.9375/936.9375 MHz, and 897.9875/936.9875 MHz. In Section 90.613 of the Commission's rules, they are identified as Channel Nos. 71, 75, 79, 151, 155 and 159.

[9] *Use of Six 900 MHz Frequency Pairs for an Advanced Train Control System*, 3 FCC Rcd 427 (1988).

[10] In 2001, the Commission adopted a new licensing approach for these six channels by converting all of AAR's individual site-specific ATCS licenses operating in the 900 MHz band into a single nationwide geographic "ribbon" license (Call Sign WPSF894) covering all railroad rights-of-way in the United States. *See* In Re Petition of the Association of American Railroads for Modification of Licenses for Use in Advanced Train Control Systems and Positive Train Control Systems, *Order*, DA 01-359, released February 15, 2001.

channels licensed to others (including CMRS carriers), there is a very high probability that the railroads' ATCS operations will experience the same kind of harmful interference that public safety licensees and others have experienced at 800 MHz, once Nextel commences operations in the 900 MHz band.[11]

5. Particularly in light of the mission-critical nature of the railroads' ATCS operations,[12] AAR submits that it is appropriate for the Commission to reconsider its decision in the *R&O* by adopting interference abatement measures for the 900 MHz band that are equivalent to the measures adopted for the 800 MHz band.[13] Indeed, it is more important now than ever that such protection be afforded to 900 MHz incumbents in view of the Commission's express decision in the *R&O* to reject Nextel's offer to relinquish its 900 MHz spectrum rights, thereby not only inviting, but actually encouraging, a future proliferation of cellular-type architecture in the 900 MHz band.[14]

6. The *R&O* created a three-part framework for interference protection for 800 MHz licenses. First, the Commission adopted an objective definition of "unacceptable interference" to determine under what circumstances public safety and other non-cellular licensees would be entitled to interference protection.[15] Second, strict responsibility for

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[11] The problem will occur when a locomotive equipped with an ATCS radio travels in close proximity to a cellular-type base station.

[12] The railroad industry is one of the "Critical Infrastructure Industries" ("CII") upon which the Commission conferred special status with respect to interference mitigation. *See, e.g., R&O* at n. 11 and ¶¶ 124, 128.

[13] *R&O* at ¶¶ 88-141.

[14] *Id.* at ¶¶ 207.

[15] *Id.* at ¶¶ 96-114.

eliminating "unacceptable interference" was assigned to the ESMR and cellular licensees.[16] And third, the Commission required that ESMR and cellular operators notify public safety and CII licensees in advance prior to activating new cells.[17] AAR urges the Commission to adopt all three of these interference abatement measures to protect incumbent licensees in the 900 MHz band in a manner that is equivalent[18] to the interference protection afforded incumbents in the 800 MHz band. Absent the adoption of such measures, the Commission will have created in the 900 MHz band an exact replica of the interference problems that have beset incumbents in the 800 MHz band over the past decade.

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16 *Id.* at ¶¶ 128-131.

17 *Id.* at ¶¶ 124-127.

18 AAR recommends "equivalent" (as distinct from "identical") protection values to account for the frequency differential between the 800 MHz and 900 MHz bands and the resultant differences in receiver performance in each of the two bands. Several generations of commercial "off-the-shelf" mobile radios are installed as the platform for railroad ATCS radio systems. These are generic mobile radios that are made for use in both the 800 MHz and 900 MHz bands. AAR performed a comparative analysis of the adjacent channel rejection and intermodulation rejection performance of these radios, as between 800 MHz and 900 MHz, in the context of the relevant parameters adopted in the *R&O* (¶ 109). That analysis revealed that the radios do not achieve the same rejection performance at 900 MHz of which they are capable at 800 MHz. Specifically, the first generation of radios has 10 dB less performance for both adjacent channel and intermodulation rejection at 900 MHz than specified for the 800 MHz band in the *R&O*. The second and third generations have 5 dB less adjacent channel rejection and 10 dB less intermodulation rejection at 900 MHz than specified for the 800 MHz band in the *R&O*. In other words, it appears that the receiver performance standards for intermodulation and adjacent channel rejection specified at paragraph 109 of the *R&O* cannot be achieved by existing railroad 900MHz ATCS products. Thus, in order to achieve a threshold for entitlement to protection against unacceptable interference at 900 MHz that is equivalent to that which was adopted in the *R&O* for the 800 MHz band, AAR recommends that the Commission specify 65 dB of adjacent channel rejection and 65 dB of intermodulation rejection for systems at 900 MHz.

III. Conclusion

There is an obvious public interest benefit in preventing interference to mission-critical CII communications such as the railroad industry's ATCS links at 900 MHz. In light of the Commission's decision in the *R&O* to encourage the deployment of incompatible cellular-type systems in the 900 MHz band, the Commission should adopt interference abatement measures to protect 900 MHz incumbents that are equivalent to those adopted in the *R&O* to protect 800 MHz incumbents.

Respectfully submitted,

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